

Independent Government Cost Estimate (IGCE)

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Introduction (1 of 2)

- What is an “IGCE”?
 - The Independent Government Cost Estimate (IGCE) is the Government's estimate of the resources and their projected costs that a contractor would incur in the performance of a contract.
 - These resources/costs include
 - Direct Costs: labor and material
 - Indirect Costs: fringe benefits, overhead, and G&A
 - Other Direct Costs: supplies, equipment, transportation, DBA insurance, and OCONUS special allowances
 - Profit or fee

Introduction (2 of 2)

- Use of the IGCE:
 - the benchmark to determine
 - Contract Budget Amounts
 - Also Price Reasonableness
- No standard methodology for preparing an IGCE
 - Use whatever method provides the best estimate and satisfies the requirement for
 - Just a number or
 - ✓ A good, realistic projection of the expected cost/price
- Should be structured, realistic, supportable, etc.

WCC Customer Service Division (CSD)

- Two separate offices:
 - Financial Services Office (FSO)
 - Contract pricing
 - Accounting
 - Finance
 - Engineering Services Office (ESO)
 - Engineering
 - Technical
 - SOW/PWS
 - Market research (Germany/Europe)

WCC Assistance

- FSO and ESO can assist in IGCE preparation by providing
 - Structure
 - For the IGCE itself
 - RFP Section B – CLINs & SLINs
 - Cost estimates for
 - Direct Labor and Indirect Rates
 - Profit/fee
 - Escalation rates/economics
 - Check that the IGCE reflects the SOW/PWS
 - Insure all potential costs are covered

FAR Cite: IGCE

- Formerly discussed/required per FAR 15.803(b)
- ✓ **Currently:** FAR Part 7 Acquisition Planning
 - FAR 7.105(a)(3) Cost. “Set forth the established cost goals for the acquisition and the rationale supporting them, and discuss related cost concepts to be employed....”
- Section 3004, Federal Acquisition Streamlining Act: Requirement for Independent Cost Estimate (ICE) for development or production of a new military program

ACA IGCE Handbook

- An IGCE is required for every procurement action
 - In excess of the simplified acquisition threshold
 - Currently \$100,000 for non-commercial items
 - \$5 million for commercial items

IGCE Revisions

- The IGCE is not set in stone!
 - The IGCE can be revised based on,
 - new price/cost information,
 - the preparation of the solicitation,
 - the honing of RFP requirements,
 - and for its other uses.
 - contract budgetary amounts
 - price reasonableness benchmark
- The IGCE should be completed prior to the solicitation's release on "the street."

Factors Affecting IGCE Preparation

- Extent/depth of the IGCE is determined by:
 - Availability of price/cost data and other information
 - Estimator's skills
 - Time constraints
 - Type of item/service purchased
 - Type of contractual action
 - **Dollar value** of contractual action
 - Agency/department policy and procedures
 - Your team leader/supervisor (Dah Boss)

IGCE Basics

- Estimator should provide the basis of IGCE
 - Provide calculations
 - Decide on US dollars, euros, etc.
 - Provide narrative
 - Source of data/numbers used
 - Estimator's assumptions and rationale
 - Should match Section B of the RFP/IFB
 - Prices by CLIN and SLIN
 - Prices by program period
 - Reflect and cost-in the tasks/requirements stated in the
 - Scope of Work (SOW)
 - Performance Work Statement (PWS)

Important Point

- An IGCE is not the lowest or the highest possible estimated cost/price.
- It's the best estimate of what other contractors may propose:
 - It should take into account other technical approaches
 - It should take into account other cost structures
- There should be sufficient information (rationale and assumptions) to allow for the explanation of differences between the IGCE and an offered price (general and/or specific).

Who Prepares the IGCE?

- Customer/requiring activity prepares and/or supplies the IGCE. Why?
 - Knows the requirements (work/tasks to be performed)
 - ITS YOUR CONTRACT!
 - HOW CAN YOU MANAGE IT WITHOUT KNOWING THE WORK BEING PERFORMED OR HOW MUCH IT COSTS?
 - Has the technical experience
 - Knows the current contract/contractor
 - Familiar with manpower and other resources currently being used

How Are IGCEs Prepared?

- Two extremes with lots of variations in between
 - Most common?
 - Previous contract price with adjustment for economics
 - Least costly
 - Similar item or service
 - Least common method?
 - Bottoms up/detailed estimate
 - Most costly

Cost Estimating Methods Used

- Four common method categories:
 - **Round Table**: Experts get together and make judgments on projected costs/prices
 - **Comparison**: Adjustments are made to a past or current item/service to derive the cost/price
 - **Parametric**: Projections are based on formulas, or cost/price estimating relationships
 - **Detailed**: A thorough review is made, with detailed information comprising the estimate

Parametric Estimating

- Cost Estimating Relationship (CER)
 - Using rough yardsticks (ratios) such as dollars per pound or per horsepower and cost per square foot as in construction
- Regression/correlation analysis
 - A single independent variable (X) is used to predict the value of a single dependent variable (Y).
- Logarithmic function (or learning curve)
 - **Simple** definition: costs (hours) decline by a predictable amount (percentage) each time accumulated volume doubles

Adjustment Factors

- Quantity
 - Some quantitative measure of the work being performed
 - Labor time
 - More/less tasks to be performed
 - Work sites
- Escalation or “Economics”

Some Considerations

- Direct versus Indirect charges
 - Charge supervision or management direct or assume costs are in the indirect rates?
 - Other costs
 - Travel
- Government contractors seem to be direct charging as much as possible

Detailed Estimate: Major Cost Elements

- Direct Material
 - Scrap/Freight
 - Material Handling
- Direct Labor
 - Direct Labor Categories
 - Direct Labor Rates
 - Direct Labor Hours
- Indirect Costs
 - Fringe Benefits
 - Overhead
- Other Direct Costs
 - Travel
 - Airfare
 - Per Diem
 - Tools/Equipment
 - Subcontractors
- General and Administrative Expenses (G&A)
- Profit/Fee

Material Estimating

- The material may be proposed in one of two general ways:
 - 1 Summary material cost estimate
 - single cost figure
 - several major cost categories
 - 2 Detailed material cost estimate
 - Bill of Materials (BOM)

Material Cost Estimate

Example (1 of 2)

| <u>Material Summary:</u> | | | |
|--------------------------|--|--|-----------------|
| | | | |
| Deliverable Material | | | \$1,375 |
| Key Supplier | | | 12,168 |
| Miscellaneous Material | | | <u>271</u> |
| | | | |
| Total | | | <u>\$13,814</u> |

Material Cost Estimate

Example: BOM (2 of 2)

| <u>Part</u> | | <u>Unit</u> | | <u>Extended</u> | <u>Extra</u> | | | <u>Cost</u> |
|---------------|--------------------|--------------|------------|------------------|---------------|---------------|--|--------------|
| <u>Number</u> | <u>Description</u> | <u>Price</u> | <u>QTY</u> | <u>Price</u> | <u>Charge</u> | <u>Vendor</u> | | <u>Basis</u> |
| 9876543 | Housing Casing | 84.72 | 468 | 39,648.96 | 1,000 | Pic Corp. | | Quote |
| 9876542 | Bearing | 14.89 | 936 | 13,937.04 | 0 | Sun Co. | | Quote |
| 9876541 | Gear, 14-tooth | 4.18 | 1,872 | 7,824.96 | 0 | Autoco | | P.O. |
| 9876540 | Cable Assembly | 328 | 468 | 153,504.00 | 0 | Rockaway | | Estimate |
| 9876539 | Bracket, Main | 23.97 | 1,404 | <u>33,653.88</u> | <u>0</u> | Cee Corp. | | Quote |
| | | | | | | | | |
| Total | | | | 248,568.84 | 1,000 | | | |

Summary Material Cost Estimates

- Two General Proposed Cost Methods:
 - 1 **Round Table Estimates.** Proposed costs based on expert opinion such as “engineering estimates” or “professional judgment.”
 - 2 **Comparison Estimates.** Proposed costs based on data from efforts completed or in process. Historic data (actuals) for the same or similar items/efforts are used or adjusted for comparison purposes (Parametrics, Cost Estimating Relationships or CERs, Learning Curves, etc.)

Detailed Material Cost Estimates

- More costly to develop and analyze than the summary estimate.
- Two basic tasks for the estimator
 - 1 estimate all the material needed
 - kinds (types) of material
 - quantities of materials
 - 2 estimate material costs/prices

Direct Labor: General Descriptions

- Engineering Labor
 - General
 - Mechanical
 - Process
 - Manufacturing
 - Production
 - Electrical & Electronic
 - Industrial
 - Chemical
 - Software
 - CAD/CAM
- Manufacturing Labor
 - Assembly
 - Fabrication
 - Machining
 - Inspection/Test/Quality
- Other
 - Integrated Logistics Support (ILS)
 - Field Service Representative (FSR)
 - Administrative
 - Contracting

Estimating Direct Labor Rates

- Sources of actual/current labor rates
 - Bureau of Labor Statistics (BLS)
 - General labor classification: white/blue collar, salaried/hourly, government/private sector, etc.
 - Specific (but still general) labor category
 - Global Insight (econometric forecasting company)
 - Professional societies
 - Private services (fee may be required)
 - Informal sources
 - Word of mouth
 - Current/previous contracts
 - Federal Government General Schedule (GS)

Direct Labor Rate

Example # 1

| <u>Description</u> | <u>Hourly Rate</u> | <u>Labor Hours</u> | <u>Amount</u> |
|----------------------|--------------------|--------------------|---------------|
| Factory Labor | \$15.50 | 150 | \$2,325 |
| Engineering Labor | \$25.00 | 60 | \$1,500 |

Direct Labor Rate

Example # 2

| <u>Description</u> | <u>Hourly Rate</u> | <u>Labor Hours</u> | <u>Amount</u> |
|--------------------|--------------------|--------------------|----------------|
| Engineering: | | | |
| - Entry Level | \$13.00 | 100 | \$1,300 |
| - Journeyman | \$20.00 | 300 | \$6,000 |
| - Senior Level | \$25.00 | <u>100</u> | <u>\$2,500</u> |
| Total | \$19.60 | 500 | \$9,800 |

Loaded Labor Rate

- **Loaded rate:** an hourly rate that is comprised of the base direct labor rate plus fringe benefits, direct labor overhead, G&A, Profit, and Cost of Money (may include some or all of these cost elements).
 - *Example: Car Repair Labor Rate.*
- A **\$25 direct hourly rate** translates into a **\$89.10 loaded rate** when 200% overhead, 8% G&A, and 10% profit are added.
 - How Calculated?
 - See next slide.

Loaded Labor Rate Calculation

| <u>Cost Element</u> | <u>Rate</u> | <u>Amount</u> | <u>Calculation</u> |
|----------------------|-------------|---------------|-----------------------------|
| DL Rate | | \$25.00 | N/A |
| Overhead | 200% | 50.00 | $25 \times 200\%$ |
| G&A | 8% | 6.00 | $(25 + 50) \times 8\%$ |
| Profit | 10% | <u>8.10</u> | $(25 + 50 + 6) \times 10\%$ |
| Total or Loaded Rate | | \$89.10 | $25 + 50 + 6 + 8.10$ |

Estimating Labor Time

- Direct Labor Hours may be proposed as the employee's labor time for the year or by month.
- One man-year is 2,080 hours or 173.3 per month.
 - If the above hours are proposed by the contractor, it would overstate the direct labor time.
 - An adjustment needs to be made for “off-the-job” time such as vacation, holidays, etc. (classified as fringe benefits), that are accounted for in the overhead, reducing the labor time.
 - The adjusted man-year/month will vary per the company.
 - Technical/salaried personnel may be in the 1800 hour range.
 - Factory personnel may be in the high 1700 hour range.
- The next slide illustrates this concept.

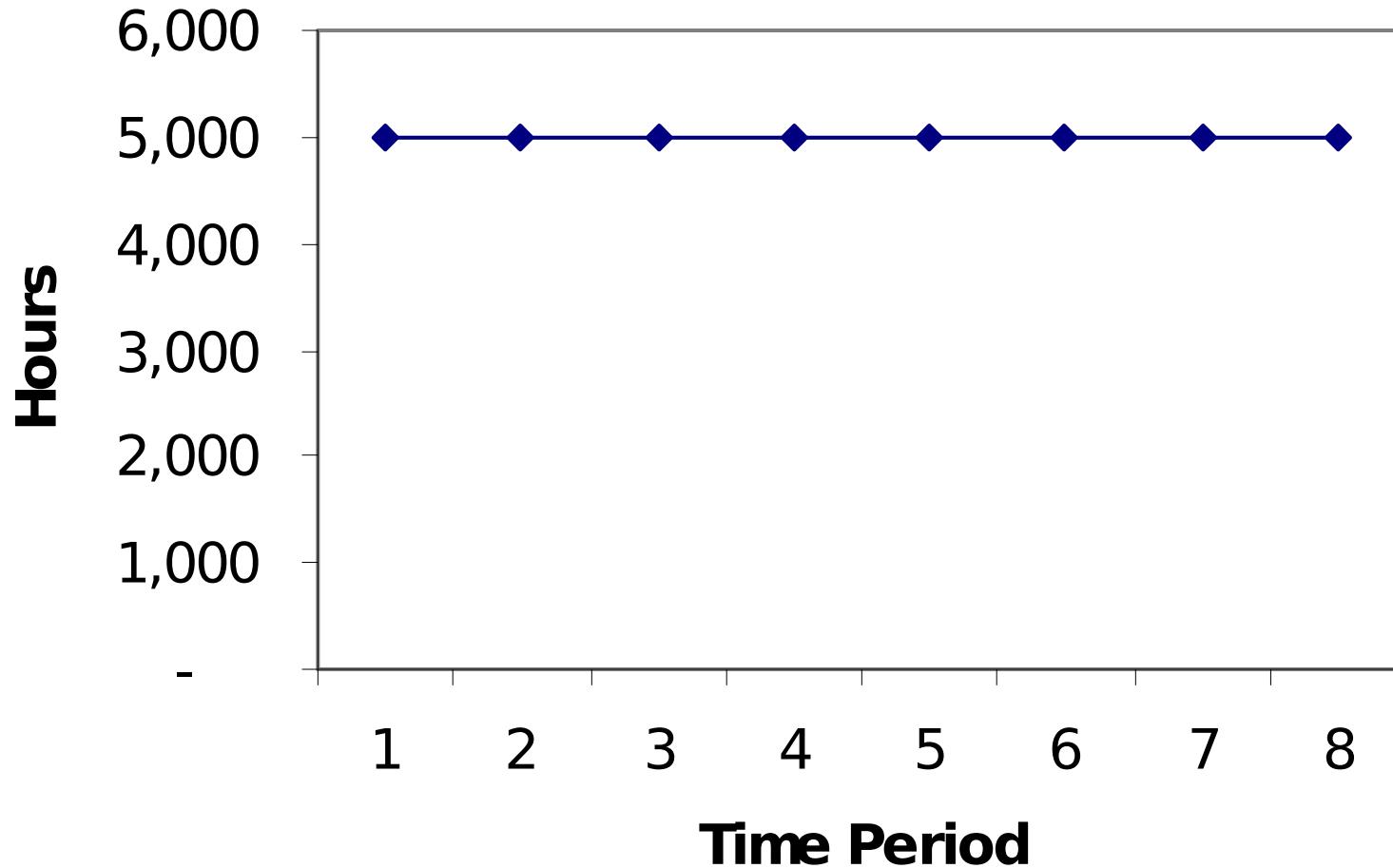
Man-Hours per Year

| | <u>Hours/Day</u> | <u>Days/Week</u> | <u>Weeks/Year</u> | <u>Hours/Year</u> | <u>Months/Year</u> | <u>Hours/Month</u> | | | | | |
|--------------|------------------|------------------|-------------------|-------------------|--------------------|--------------------|-------|---|----|---|-------|
| | 8 | x | 5 | x | 52 | = | 2,080 | / | 12 | = | 173.3 |
| Less: | | | <u>Days/Year</u> | | | | | | | | |
| Holidays | 8 | x | 13 | | = | 104 | | | | | |
| Vacation | 8 | x | 10 | | = | 80 | | | | | |
| Sickleave | 8 | x | 5 | | = | 40 | | | | | |
| Other | 8 | x | 5 | | = | <u>40</u> | | | | | |
| Total | | | | | | 264 | | | | | |
| Adjusted | | | | | | <u>1,816</u> | | | | | 151.3 |

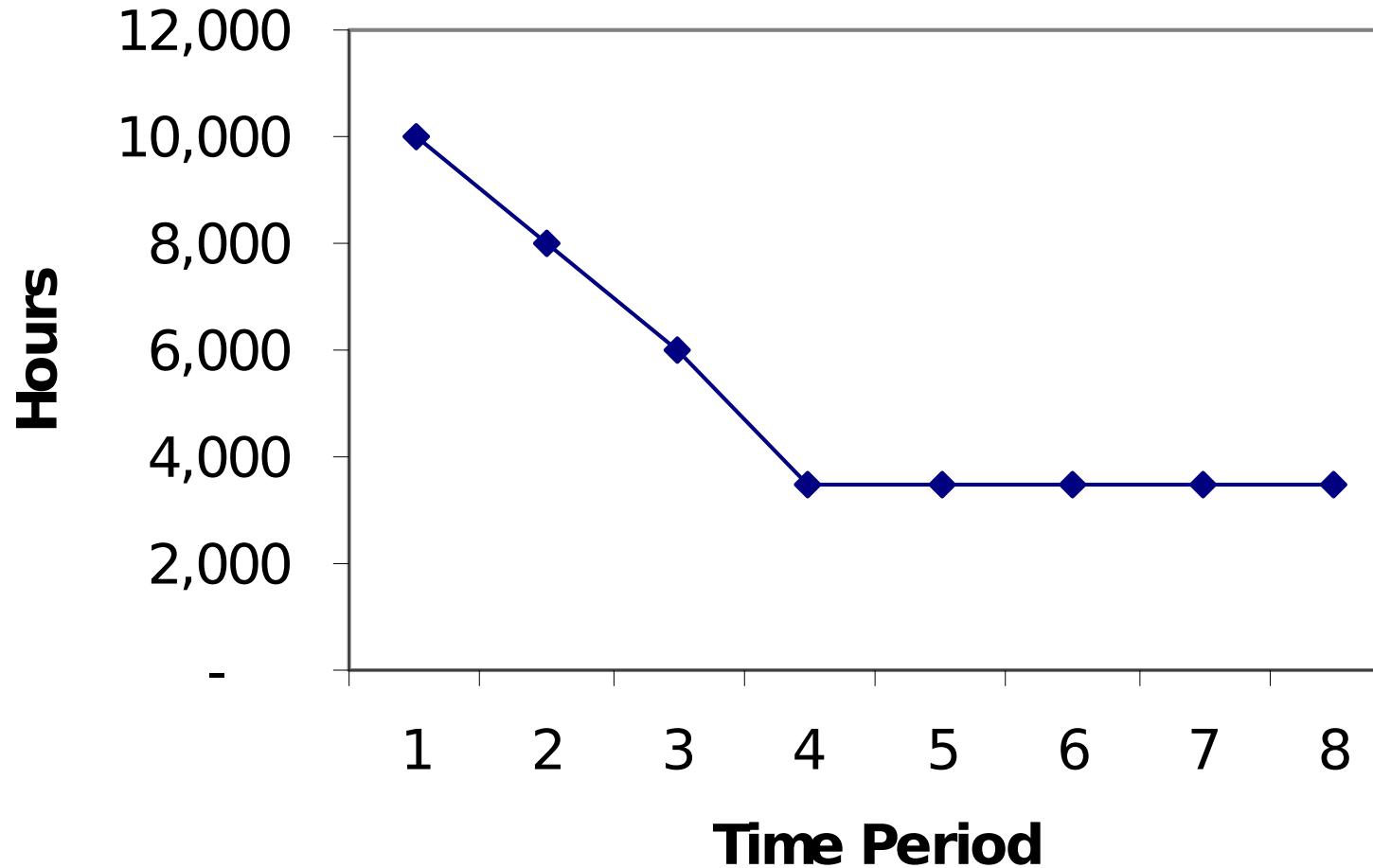
Direct Labor Hour Time Phasing

- Direct labor tasks are performed at various stages in the contract performance period.
 - **Factory labor.** Assembly is one month prior to delivery. Machining/fabrication is one to two months prior to delivery.
 - **Engineering labor.** Varies based on task. Design effort is expended early. Production support is heavy in early period, dropping off as the program matures.
- Spread of Hours (following slides provide examples):
 - Linear
 - Front loaded
 - Back loaded
 - Early peak

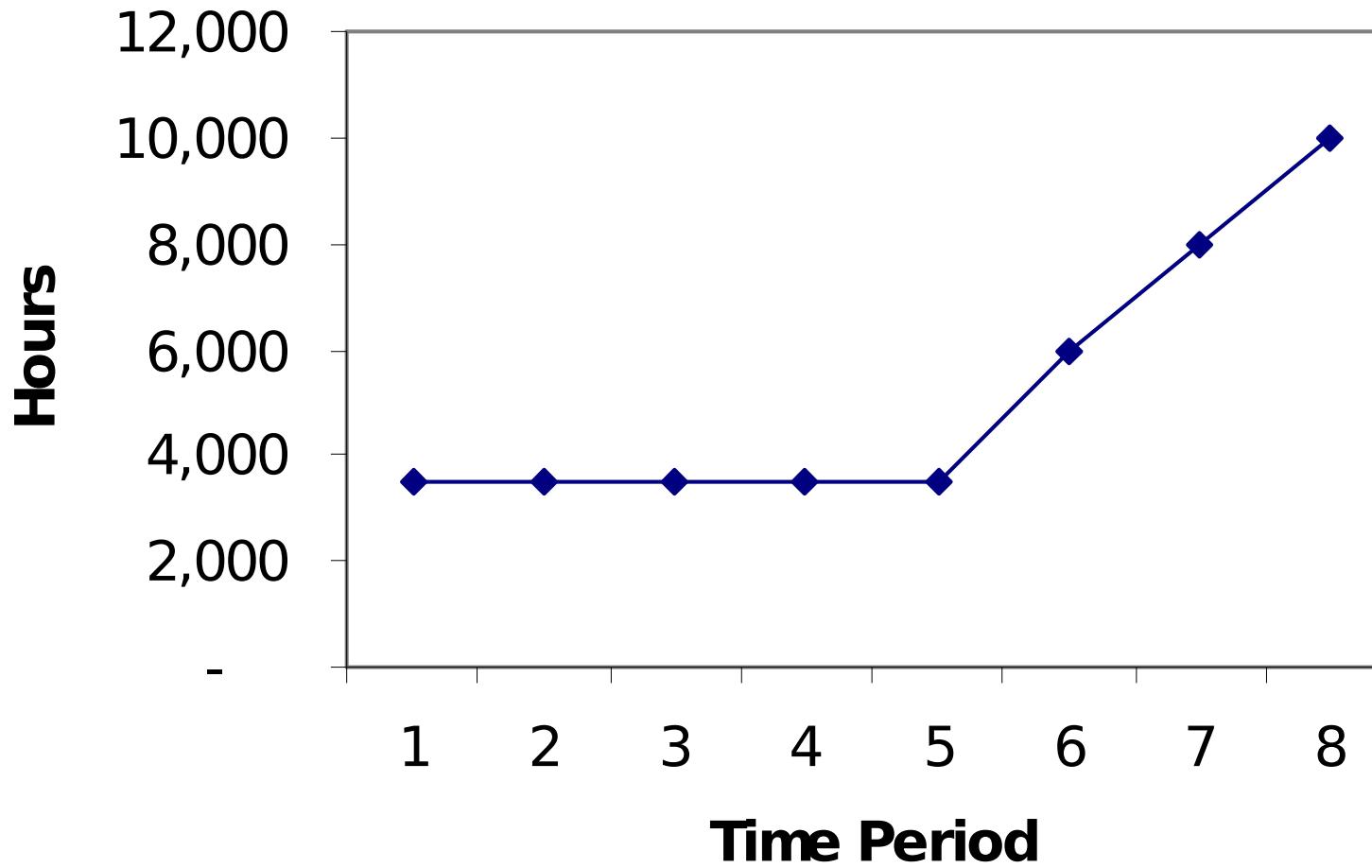
Linear Spread of Hours



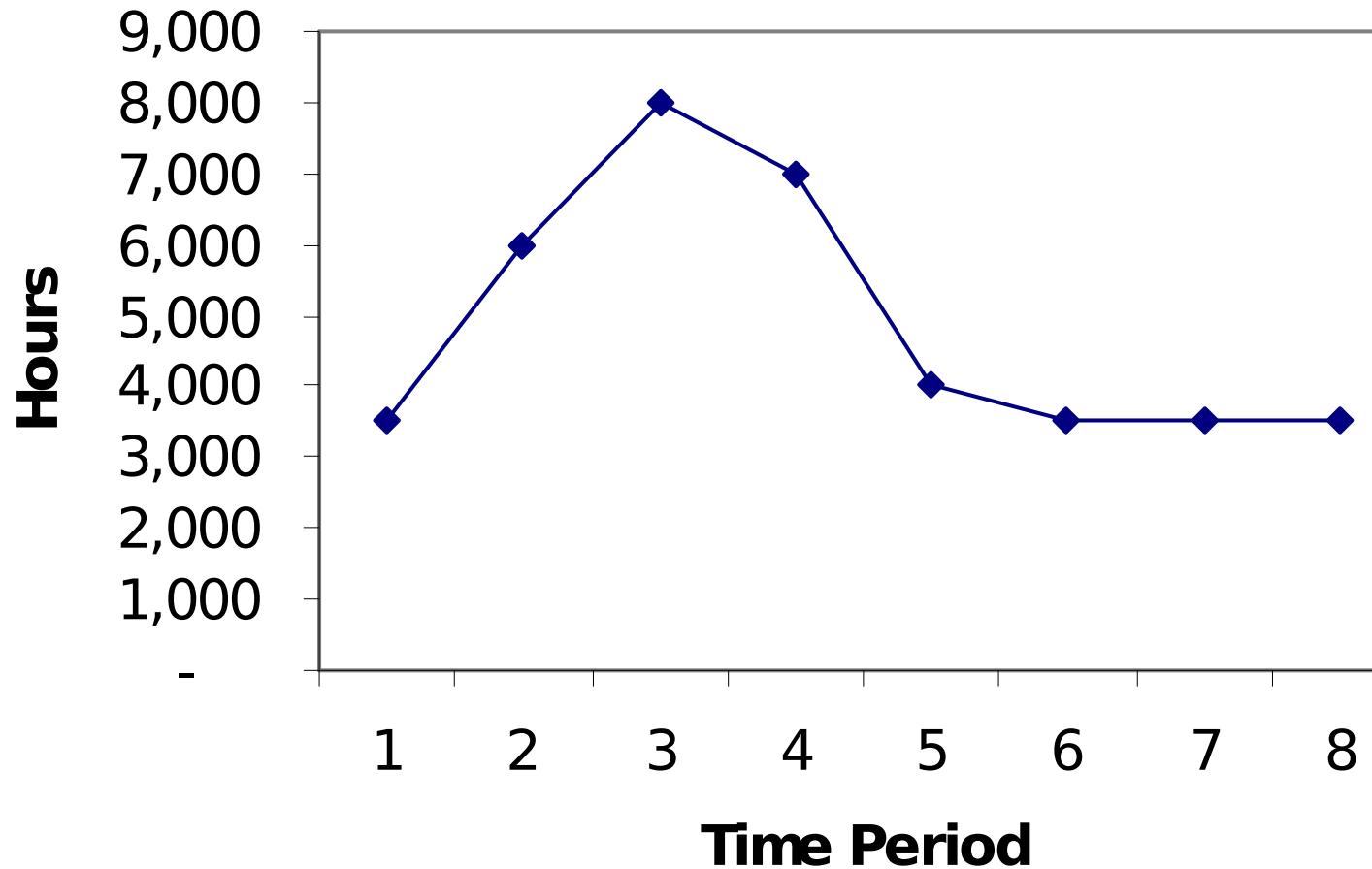
Front Loaded Spread of Hours



Back Loaded Spread of Hours



Early Peak Spread of Hours



Direct Engineering and/or Administrative Labor (1 of 3)

- Task Approach
 - Total effort divided into parts
 - Effort related to time, skills, or available individuals/labor categories
- Ratio of Support
 - Estimate man-months of the “creative” or major effort
 - Historic/judgmental factor applied for support effort

Direct Engineering and/or Administrative Labor (2 of 3)

- Availability
 - Know available manpower and projects
 - Effort proposed based on current/projected manpower.
- Production Engineering Ratio
 - Direct relationship with production effort
 - Effort decreases with production/time
 - Factor applied

Direct Engineering and/or Administrative Labor (3 of 3)

- Learning Curve
 - Recurring/nonrecurring effort assumed
 - Assume bulk of nonrecurring effort expended prior to first delivery
 - Remaining recurring effort diminishes with production/time
- Level of Effort
 - Stability in design, effort, or production
 - Given number of hours for liaison.

Other Direct Costs (ODCs)

- Examples:
 - Pre-production/Start-Up or Set-Up Costs
 - (Special) Test Equipment/Tooling
 - (Special) Certifications
 - Travel Expenses
 - Preservation/Packaging/Packing
 - Transportation
 - DBA Insurance
- Includes many expenses usually charged as indirect
- ODCs may be estimated using the same techniques as those for material

Basic Cost Element Breakdown

| Proposed Price By Cost Element | | | | |
|---------------------------------------|--------------------|------|------|--------|
| Item/Service: | | | | |
| RFP: | | | | |
| CLIN: | | | | |
| SLIN: | | | | |
| Date/Time: | 3/29/2006 10:52 | | | |
| File Name: | | | | |
| Cost Element: | Base Period | | | |
| | Hours | Rate | Base | Amount |
| Material: | | | | |
| Direct Material | | | | 100 |
| Scrap/Discount/Miscellaneous | | 1% | 100 | 1 |
| Material Handling | | 2% | 101 | 2 |
| Total Material | | | | 103 |
| Direct Labor: | | | | |
| Labor Category 1 | 5 | 5.00 | | 25 |
| Labor Category 2 | 6 | 2.00 | | 12 |
| Total | 11 | 3.36 | | 37 |
| Fringe Benefits | | 3% | 37 | 1 |
| Overhead | | 4% | 38 | 2 |
| Other Direct Costs (ODC's) | | | | |
| Subcontracts | | | | 100 |
| Transportation: | | | | 50 |
| Total ODC's | | | | 150 |
| Subtotal | | | | 193 |
| G&A Expenses | | 5% | 193 | 10 |
| Total Costs | | | | 202 |
| Profit | | 1% | 202 | 2 |
| Unit Price | | | | 204 |
| Quantity | | | | 2 |
| Total Price | | | | 409 |

Example: Loaded Labor Rate

Cost Element Breakdown

| Loaded Labor Rate Calculation Template | | | | | | | | | | | | | | | | |
|--|------------------------|------|----------|---------|-----------|---------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|-------|-----------|
| Item/Service: | | | | | | | | | | | | | | | | |
| RFP: | | | | | | | | | | | | | | | | |
| CLIN: | | | | | | | | | | | | | | | | |
| SLIN: | | | | | | | | | | | | | | | | |
| Date/Time: | 2/28/2006 11:08 | | | | | | | | | | | | | | | |
| File Name: | | | | | | | | | | | | | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) |
| | | | | | | | | | | | | | | | | |
| | | | | (3)*(4) | (5)*(6) | (5)+(6) | (7)*(8) | (7)+(8) | (8)*(9) | (8)+(9) | (11)*(12) | (11)+(12) | (13)*(14) | (13)+(14) | | (15)*(16) |
| Rates: | | | | | | | | | | | | | | | | |
| | | | | Base | Composite | 1.00% | 2.00% | 3.00% | 4.00% | 1% | Est | Est | | | | |
| | | | | | | Adj | | | | | Labor | Total | | | | |
| CLIN/SLIN | Labor Category | WGT | Lbr Rate | L Rate | Esc | LR | FB | ST | O/H | ST | G&A | TC | Profit | LLR | Hours | Price |
| | Automotive Mechanic | 40% | 1.00 € | 0.40 € | | | | | | | | | | | | |
| | Metal Body Repairman | 20% | 2.00 € | 0.30 € | | | | | | | | | | | | |
| | Elec Tech/Mechanic | 30% | 3.00 € | 0.20 € | | | | | | | | | | | | |
| | Fuel/Elec Sys Mechanic | 10% | 4.00 € | 0.10 € | | | | | | | | | | | | |
| 0001AA | Composite | 100% | | 1.00 € | 0.01 € | 1.01 € | 0.02 € | 1.03 € | 0.03 € | 1.06 € | 0.04 € | 1.10 € | 0.01 € | 1.11 € | 100 | 111.46 € |

IGCE: Conclusion

- An IGCE is the best attempt at projecting a future price or prices
 - If you could predict the future, you wouldn't be working for the government
 - You would be rich!
- The IGCE is a procurement sensitive document
 - Access shall be on a need to know basis
- There are offices at WCC, the FSO and ESO, that can assist you in IGCE preparation